IN THE DRAWINGS

The attached sheets of drawings include changes to FIGs. 3A, 3B, 4 and 14. These sheets replace the original sheets that include FIGs. 3A, 3B, 4 and 14. Element numbers not used in the Detailed Description have been omitted from FIGs. 3A, 3B and 4, and an element number has been corrected in FIG. 14.

Attachment: Three replacement sheets.

REMARKS

Claims 1-26 are pending in the application. Claims 1, 13, 14, 19, 25 and 26 have been amended. The amendments to claims 13 and 25 have been made to correct informalities and do not reduce the scope of these claims. No new matter has been added. Reconsideration of the claims, in view of the comments provided below, is respectfully requested.

Some amendments have been made to the Specification to correct an error, and to update a reference to a patent application that has now issued as a patent. No new matter has been entered.

Objections to the Drawings

The drawings were objected to for failing to comply with 37 C.F.R. § 1.84(p)(5) because they include some reference characters not mentioned in the description. The drawings have been amended and replacement drawings submitted herewith.

Rejection under 35 U.S.C. § 103(a)

Claims 1-3 and 6-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato et al. (JP 0904647A) (Kato) in view of Cormier et al. (U.S. Patent No. 4,304,486) (Cormier). Kato teaches an optical circuit module in which a double core ferrule (20) has two optical fibers (2 and 7) and a single core ferrule (9) that has one fiber (4). A first collimator lens (21) collimates light from fiber (7). A second collimator lens collimates light from fiber (4). An optical multiplexing/demultiplexing filter (22) and a wedged glass plate (23) are disposed between the first and second collimator lenses. (abstract)

It is stated that Kato teaches the claimed invention except for a photodetector unit disposed on a second side of the filter unit or that the photodetector has a photodetector element having a detector spectral response over the wavelength range. Furthermore, it is stated that Kato fails to teach that the filter unit has a spectral transmission characteristic selected to partially compensate for non-uniformity in the detector spectral response for a more uniform spectral response. Also, it is stated that Cormier teaches the use of a photodetector and placing a filter ahead of the photodetector to insure a uniform response by the photodetector. It is further stated that it would have been obvious to one of ordinary skill in the art at the time of the invention to use a filter to provide more uniform device spectral response.

Cormier's invention lies in the non-analogous art of electrophotographic copying, which is unrelated to the filed of optical communications. Cormier teaches an optical imaging system in which a photodetector intercepts a portion of unfocused light reflected towards the photoconductive surface. An electronic circuit generates a biasing voltage for the copier's development electrode which varies with the amount of light incident on the photodetector a set time after the photodetector receives a distinctively intense light pulse reflected from a high-reflectivity strip positioned ahead of the document being copied. (Abstract). Cormier states, at col. 4, lines 1-6 that a filter may be placed ahead of the photodetector to insure a uniform response within the spectral range of interest, taking into account the illuminating light, even if the photodetector has a substantially higher sensitivity to one or more particular wavelengths.

Three criteria must be met to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference, or combination of references, must teach or suggest all the claim limitations. MPEP § 2142. Applicant respectfully traverses the rejection since the proposed combination of prior art fails to disclose all the claim limitations, and there would be no motivation to combine the references in the manner proposed.

Independent Claims 1 and 14

Independent claim 1 is directed to a monitor unit for monitoring light within a wavelength range and propagating within an optical fiber. The unit comprises an input port, an output port, a focusing unit and a filter unit. The input port and focusing unit are disposed on a first side of the filter unit. Light from the input port passes through the focusing unit to the filter unit. Light reflected by the filter unit passes through the focusing unit to the output port. A photodetector unit is disposed on a second side of the filter unit, to receive light transmitted through the filter unit. The photodetector unit has at least one photodetector element having a detector spectral response over the wavelength range. The filter unit has a spectral transmission characteristic selected to at least partially compensate for non-uniformity in the detector spectral response so that a monitor spectral response is more uniform than the detector spectral response.

Independent claim 14 is directed to an optical system that includes, *inter alia*, a monitor unit similar to that of claim 1.

Applicants respectfully disagree with the rejection. Kato is directed to a particular arrangement that is used for wavelength multiplexing. As such, the filter in Kato's device ideally transmits all light at one wavelength (1.55 μm) and reflects all light at the other wavelength (1.48 μm). This permits the light at 1.48 μm to be reflected into the fiber (2), while permitting the light at 1.55 μm to pass from the fiber (2) to the other fiber (4).

The filter for the present invention, on the other hand, is different from that discussed in Kato. In the present invention, the filter performs two functions. First, it reflects a major portion of the signal light from the input port to the output port. Second, it transmits a small portion of the signal light with a spectral characteristic that is selected to compensate for the spectral response of the detector. Thus, the filter "taps off" a small portion of the signal for monitoring purposes, while the majority of the signal is passed to the output port.

The filter taught by Kato is unsuitable for this purpose. Kato's filter transmits ideally all of the signal light (at 1.55. μm), and does not reflect the signal light from the input port through the focusing unit to the output port. Instead, in Kato's device, the signal light, at 1.55 μm, is transmitted from the input fiber (2), through the filter to the output fiber (4).

Cormier teaches that a filter can be placed ahead of a photodetector to insure a uniform response. However, neither of the references, individually or in combination teach or suggest that a filter, that has a selected spectral transmission for compensating for the spectral response of the detector, is used to transmit a portion of the signal light to the detector while at the same time reflecting the remainder of the signal light to the output port. Accordingly, the proposed combination of references fails to teach or suggest all the elements of claims 1 and 14.

Furthermore, applicants respectfully contend that one of ordinary skill in the art would not turn to Cormier for the alleged teaching. Cormier is related to the art of photocopiers, while the present invention is related to the art of fiber optical communication, and is more particularly concerned with how to monitor light that is propagating an optical fiber. Further evidence of the unrelated ness of the two references may be found in examining their international classification nos.: Kato is classified under G02B 6/293 (optical elements, systems or apparatus), while Cormier is classified under G03G 15/00 (electrography, electrophotography, magnetography). Thus, applicants contend that Cormier is not from an analogous field of art, and it is incorrect to combine the two references. Thus, there would be no motivation to combine the references in the manner proposed.

For these reasons, claims 1 and 14 are patentable over the proposed combination of references.

Claim 19

Claim 19 is directed to a method of monitoring light within a wavelength range propagating along an optical fiber. The method comprises transmitting the light from the fiber through a focusing unit to form a substantially collimated beam propagating towards a filter unit having a filter spectral characteristic, and transmitting a portion of the substantially collimated beam through the filter unit. The transmitted portion of the substantially collimated beam is detected with a photodetector having a detector spectral response. The filter's spectral characteristic is selected to reduce non-uniformities in the detector spectral response over the wavelength range. Light is also reflected from the filter unit to an output, the reflected light being characterized by the filter spectral characteristic.

Applicants respectfully contend that there is no motivation to combine the references to produce the invention of claim 19, for the same reasons as discussed above with respect to claims 1 and 14. In addition, the invention of claim 19 requires that the beam reflected by the filter unit and the beam transmitted through the filter unit are characterized by the filter response and that the filter response is selected to reduce non-uniformities in the detector spectral response over the wavelength range. Thus, the reflected light, which is not detected by the photodetector but propagates instead to the output port, is characterized by the spectral characteristic that is used to flatten the response of the photodetector. This is not taught or suggested by either of the references, either individually or in combination.

For these reasons, claim 19 is patentable over the proposed combination of Kato and Cormier.

Claim 26

Claim 26 is directed to a device for monitoring light within a wavelength range propagating along an optical fiber. The device comprises means for transmitting the light from the fiber through a means for focusing to form a substantially collimated beam propagating towards a means for filtering having a filter spectral characteristic and means for transmitting a portion of the substantially collimated beam through the means for filtering. The device also

includes means for detecting the transmitted portion of the substantially collimated beam characterized by a detector spectral response. The filter spectral characteristic is selected to reduce non-uniformities in the detector spectral response over the wavelength range. The device also includes means for reflecting light from the means for filtering to an output, where the reflected light is characterized by the filter spectral characteristic.

This claim is written in means plus function form and, therefore, falls under 35 U.S.C. § 112, sixth paragraph. According to the statute, this claim shall be construed to cover the corresponding structure described in the specification and equivalents thereof.

For reasons similar to those discussed above with regard to claims 1, 14 and 19, claim 26 is patentable over the proposed combination of references. In particular, there is no teaching or suggestion in the proposed combination of references that the reflected light is characterized by the filter spectral characteristic where the filter spectral characteristic is selected to reduce non-uniformities in the detector spectral response arising from the transmitted light. Accordingly, claim 26 is allowable.

Dependent Claims 2, 3, 6-13, 15-18, and 20-25

Dependent claims 2, 3, 6-13, 15-18, and 20-25, which depend from claims 1, 14 and 19, and further define the inventions of claims 26 and 41, were also rejected under 35 U.S.C. §103(a) as being unpatentable over the proposed combination of Kato and Cormier. While Applicants do not acquiesce with the particular rejections to these dependent claims, it is believed that these rejections are moot in view of the remarks made in connection with independent claims 1, 14 and 19. Therefore, dependent claims 2, 3, 6-13, 15-18 and 20-25 are also in condition for allowance.

Dependent Claims 4 and 5

Dependent claims 4 and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Kato and Cormier, in view of Hrycin et al. (U.S. Patent No. 5,099,359) (Hrycin). It is stated that neither Kato nor Cormier teach that the filter has a coating of alternating layers of TiO_2 and SiO_2, but that Hrycin does teach such a coating and that it would have been obvious at the time of the invention to include such a multilayer reflective coating to design a filter with the desired spectral characteristics.

Hrycin teaches the use of an interference filter in a film scanning system having a high speed CCD imager. Hrycin fails to correct the deficiencies of the combination of Kato and Cormier discussed above. Accordingly, claims 4 and 5 are not obvious in view of the proposed combination of Kato, Cormier and Hrycin, and are patentable thereover.

Provisional Double Patenting Rejection

Claims 1-3 and 7-26 are provisionally rejected under 35 U.S.C. § 101 as claiming the same invention as claims 26-28 and 29-48 of co-pending U.S. Patent Application Serial No. 09/999,533. Since this is a provisional rejection, it will be addressed when either this application of the '533 applications issues as a patent.

Conclusion

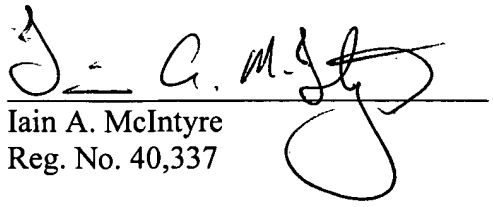
In view of the amendments and reasons provided above, it is believed that all pending claims are in condition for allowance. Applicant respectfully requests favorable reconsideration and early allowance of all pending claims.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Iain A. McIntyre at (612) 436-9610.

Respectfully submitted,

CCVL
Customer No. 38846

Date: March 29, 2005

By: 
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